

WHAT IS CLAIMED IS:

1. A disc augmentation system configured to repair or rehabilitate an intervertebral disc comprising:  
at least one annulus augmentation device; and  
at least one nuclear augmentation material.
2. The system of Claim 1, wherein said annulus augmentation device prevents the extrusion of materials from within the space normally occupied by the nucleus pulposus and inner annulus fibrosus.
3. The system of Claim 1, wherein said annulus augmentation device is a barrier.
4. The system of Claim 1, wherein said nuclear augmentation material restores diminished disc height and pressure.
5. The system of Claim 1, wherein said nuclear augmentation material induces the growth or formation of material within the nuclear space.
6. The system of Claim 1, wherein said annulus augmentation device is removable.
7. The system of Claim 1, wherein said nuclear augmentation material is removable.
8. The system of Claim 1, wherein said nuclear augmentation material comprises a pharmacologically active agent.
9. The system of Claim 1, wherein said nuclear augmentation material is selected from the group consisting of: liquids, gels, solids, and gases.
10. The system of Claim 1, wherein said nuclear augmentation material is capable of changing phase.
11. The system of Claim 9, wherein said liquid comprises a fluid nuclear augmentation material selected from the group consisting of: steroids, antibiotics, tissue necrosis factors, tissue necrosis factor antagonists, analgesics, growth factors, genes, gene vectors, hyaluronic acid, non-crosslinked collagen, fibrin, liquid fat, oils, synthetic polymers, polyethylene glycol, liquid silicones, synthetic oils, and saline.
12. The system of Claim 9, wherein said gel is a hydrogel.

10055504-102501

13. The system of Claim 12, wherein said hydrogel is selected from the group consisting of: acrylonitriles, acrylic acids, polyacrylimides, acrylimides, acrylimidines, polyacrylonitriles, and polyvinylalcohols.

14. The system of Claim 9, wherein said solid is cube-like, spheroid, disc-like, ellipsoid, rhombohedral, cylindrical, or amorphous.

15. The system of Claim 9, wherein said solid is in powder form.

16. The system of Claim 9, wherein said solid is selected from the group consisting of: titanium, stainless steels, nitinol, cobalt, chrome, resorbable, polyurethane, polyester, PEEK, PET, FEP, PTFE, ePTFE, PMMA, nylon, carbon fiber, Delrin, polyvinyl alcohol gels, polyglycolic acid, polyethylene glycol; silicone gel, silicone rubber, vulcanized rubber, gas filled vesicles, bone, hydroxy apatite, cross-linked collagen, muscle tissue, fat, cellulose, keratin, cartilage, protein polymers, transplanted nucleus pulposus, bioengineered nucleus pulposus, transplanted annulus fibrosus and bioengineered annulus fibrosus.

17. The system of Claim 9, wherein said gel is impregnated or coated with one or more biologically active compounds.

18. The system of Claim 17, wherein said biologically active compound is selected from the group consisting of: drug carriers, genetic vectors, naked genes, therapeutic agents, growth renewal agents, growth inhibitory agents, analgesics, anti-infectious agents, and anti-inflammatory drugs.

19. The system of Claim 9, wherein said solid is impregnated or coated with at least one biologically active compound.

20. The system of Claim 19, wherein said biologically active compound is selected from the group consisting of: drug carriers, genetic vectors, naked genes, therapeutic agents, growth renewal agents, growth inhibitory agents, analgesics, anti-infectious agents, and anti-inflammatory drugs.

21. A method of repairing or rehabilitating an intervertebral disc by augmentation comprising:

inserting at least one annulus augmentation device; and  
inserting at least one nuclear augmentation material.

22. The method of Claim 21, wherein said nuclear augmentation material conforms to healthy regions of the anulus while said anulus augmentation device shields weaker regions of the anulus.

1055504-105501